

# PATENT SPECIFICATION

NO DRAWINGS

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COMPLETE SPECIFICATION

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## Improvements in or relating to Adhesive Laminates

We, EVOMASTICS LIMITED, a British Company of Common Road, Stafford, England, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to adhesive laminates and includes the preparation of such a laminate.

According to the invention there is provided an adhesive laminate which comprises a layer of a self-adhesive bituminous composition coated onto a flexible substrate which is inert to the adhesive composition and having a releasable protective layer of sheet material in contact with the exposed surface of the adhesive composition. Preferably, the flexible substrate is a metal foil, such as, aluminium foil, although other flexible sheet materials which are inert to the adhesive composition may be employed, such as thermoplastic materials, a preferred example being polyvinyl chloride.

The adhesive composition desirably contains filler material and preferably the filler material comprises both fibrous and powdered filler although it is possible to produce an acceptable laminate without filler or using only one of these two types of fillers. At least a part of the powdered filler when used is preferably surface-treated carbonate and examples of other suitable powdered fillers are ground limestone silica and slate. Surface-treated carbonate is calcium carbonate, in the form for example of crushed chalk, limestone or calcite, which has been treated with a minor amount of stearic acid so that only the outer surface of the carbonate particles is reacted with the acid. The fibrous filler which we prefer to use is asbestos fibre. Whatever the type of filler selected it should be stable at the melting

temperature of bitumen and the filler should be dispersed in discrete particles throughout the adhesive composition.

A flexible polymeric material, which is compatible with the bitumen, is advantageously included in the adhesive composition to act as a flexibiliser for the bitumen at low temperatures. The polymeric material may, for example, be a synthetic thermoplastic polymer. Preferably the layer of adhesion composition is thicker than the substrate.

Advantageously the bituminous composition has the following composition:—

Bitumen	48 to 58%
Synthetic polymer	4 to 8%
Flux oil	5 to 7%
Surface-treated Carbonate	15 to 30%
Fibrous filler	0 to 20%

and powdered filler other than surface-treated carbonate 0 to 20% all percentages being by weight of the final composition.

Flux oil is a mineral oil which is compatible with bitumen and its function in the adhesive composition is to improve its tackiness at low temperatures.

The synthetic polymer fulfils the function of acting as a flexibiliser for the bitumen at low temperatures and also of reducing the tendency of the bitumen to run or flow at high temperatures and may be any compatible polymer such as the thermoplastic polymers polyethylene and polypropylene.

One embodiment of the invention will now be described by way of example only:—

### Example

A molten bituminous composition is spread by means of a doctor blade in a uniform layer about 0.05" thick onto a substrate comprising a soft temper aluminium

[Price 4s. 6d.]

foil having a thickness of about 0.002". A protective paper layer coated with a release agent is then applied to the exposed surface of the adhesive composition. The resultant laminate may be cut in strips, if desired, to form an adhesive tape.

The bituminous composition employed, was prepared by mixing the following ingredients into 611 lbs of molten 190/210 bitumen.

Polythene .....	68 lbs.
Flux oil T .....	
Shell Chemical Company .....	68 lbs.
Asbestos Fibre .....	124 lbs.
Surface-treated Carbonate .....	249 lbs.

When using the adhesive laminate described above the protective paper is removed to expose the tacky bituminous surface which is then pressed firmly into intimate contact with the surfaces to be sealed. The above composition exhibits a high degree of adhesion immediately on being pressed into contact with a variety of surfaces.

It has been found that no reinforcement of the bituminous layer is necessary with the adhesion laminates of the present invention.

The adhesive laminate may be readily rolled into a coil with or without a central core, or manufactured as flat sheets as desired. The laminate may be used, for example, to provide a water and dustproof seal to joints in buildings or to provide similar seals to seams in structures built up from light metal pressings, for example, refrigerator cabinets. In addition it may be used as a maintenance and repair material for sealing cracks and holes in roofs and gutters by cutting a piece of the laminate to an appropriate size.

#### WHAT WE CLAIM IS:—

1. An adhesive laminate which comprises a layer of a self-adhesive bituminous composition coated onto a flexible substrate which is inert to the adhesive composition and having a releasable protective layer of sheet material in contact with the exposed surface of the adhesive composition.

2. A laminate according to claim 1 in which the substrate is a metal foil.

3. A laminate according to claim 2 in which the metal foil is an aluminium foil.

4. A laminate according to claim 1 in which the substrate is a sheet of thermoplastic material.

5. A laminate according to claim 4 in which the thermoplastic material is polyvinyl chloride.

6. A laminate according to any one of the preceding claims in which the adhesive

composition has a fibrous and/or powdered filler dispersed therein.

7. A laminate according to claim 6 in which at least a part of the powdered filler is surface-treated carbonate.

8. A laminate according to any one of the preceding claims in which the adhesive composition includes a flexible polymeric material which is compatible therewith and which acts as a flexibiliser for the bitumen at low temperatures.

9. A laminate according to claim 8 in which the polymeric material is a synthetic thermoplastic polymer.

10. A laminate according to any one of the preceding claims in which the adhesive composition has the following composition:—

bitumen	48 to 58%	
synthetic polymer	4 to 8%	80
flux oil	5 to 7%	
surface treated carbonate	15 to 30%	
fibrous filler	0 to 20%	

powdered filler other than surface treated carbonate 0 to 20% all percentages being by weight of the final composition.

11. A laminate according to any one of the preceding claims in which the adhesive composition is about 0.05" thick.

12. A laminate according to any of the preceding claims in which the protective layer of sheet material is a sheet of paper treated with a release agent.

13. A laminate according to any one of the preceding claims in which the layer of adhesive composition is thicker than the flexible substrate.

14. The adhesive laminate substantially as described in the foregoing Example.

15. An adhesive laminate according to any one of the preceding claims in the form of a tape.

16. A method of preparing an adhesive laminate claimed in any one of the preceding claims which comprises mixing the ingredients of the adhesive composition other than bitumen into a mass of molten bitumen, coating the resultant mixture onto the flexible substrate and applying the protective layer of sheet material to the exposed surface of the adhesive composition.

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